CLAIMS

What is claimed is:

1. An optical monitoring system, comprising:
   a signal source for an optical signal having spectrally separated channels distributed within a first spectral band and a second spectral band;
   a tunable filter that filters the optical signal;
   a dichroic filter that separates the first spectral band from the second spectral band in the filtered optical signal from the tunable filter;
   a first optical signal detector for detecting channels in the first spectral band in the filtered optical signal; and
   a second optical signal detector for detecting channels in the second spectral band in the filtered optical signal.

2. An optical monitoring system as claimed in claim 1, further comprising an isolator for suppressing back reflections into the signal source.

3. An optical monitoring system as claimed in claim 1, further comprising:
   a reference source for generating a reference signal outside of the first and second spectral bands; and
   a reference signal detector for detecting the reference signal post filtering by the tunable filter.

4. An optical monitoring system as claimed in claim 3, wherein the reference source comprises:
   a broadband source; and
   an etalon that generates a reference signal with stable spectral characteristics.

5. An optical monitoring system as claimed in claim 4, wherein the etalon functions as a Fabry-Perot filter to generate a reference signal with spectrally-spaced energy peaks from a broad band signal from the broadband source.

6. An optical monitoring system as claimed in claim 1, wherein the first and second spectral bands are L and C-communication bands.

7. An optical monitoring system as claimed in claim 1, wherein a free spectral range of the tunable filter is selected to enable simultaneous detection in the first spectral band and the second spectral band.

8. An optical monitoring system as claimed in claim 1, wherein a free spectral range of the tunable filter is greater than a range of the first spectral band and the second spectral band individually and less than a range of the first spectral band added to the range of the second spectral band.

9. A method for optical signal monitoring, comprising:
receiving an optical signal having spectrally separated channels distributed within a first spectral band and a second spectral band;
filtering the optical signal;
separating the first spectral band from the second spectral band in the filtered optical signal;
detecting channels in the first spectral band in the filtered optical signal; and
detecting channels in the second spectral band in the filtered optical signal.

10. A method as claimed in claim 9, further comprising suppressing back reflections into the signal source.

11. A method as claimed in claim 9, further comprising generating the reference signal and filtering the reference signal.

12. A method as claimed in claim 9, further comprising:
generating a reference signal; and
filtering the reference signal simultaneously with the optical signal.

13. A method as claimed in claim 9, further comprising simultaneously filtering the first and second spectral bands in the optical signal.

14. A method as claimed in claim 9, wherein the first and second spectral bands are L and C-communication bands.

15. A method as claimed in claim 9, further comprising controlling a free spectral range of the tuning step to enable simultaneous detection in the first spectral band and the second spectral band.